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Europe and the Technological Gap

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EUROPE AND THE TECHNOLOGICAL GAP

The Western European governments are beginning to examine the problem of how to develop their technological and scientific resources in the interests of economic progress. The belief is widespread that the future hope of the European economy rests on the greater diffusion of technical and scientific knowledge at all stages of the managerial and productive process. This has long been one of the general objectives of the movement for European integration, but a number of governments concerned have important political motives for devoting attention to the matter at this time.

In a number of countries, spreading awareness of the existence of disparities frequently called the "technological gap"--between US and European accomplishments in applied science and advanced industrial techniques has created demands for new and more effective domestic policies. In other countries, the governments have been compelled to define their attitudes regarding the "gap" because of developments in NATO and in the European Economic Community (EEC) calling in question long-established relationships with the US.

The measures currently being discussed may in time produce better understanding of the realities involved. There appears to be little likelihood, however, that this issue--with its anti-US overtones in some countries--will soon disappear from European politics.

The Technological Gap: Fact or Fancy?

It seems evident that there will always be an absolute "technological gap" between the US economy--already pushing well past a GNP of $700 billion--and individual European economies. The question is whether the Europeans in concert will use their resources and potential more efficiently.

The French invented the term "technological gap" and have been among its principal promoters. As used in France the term implies that US industry is "ahead" of European industry on virtually every front, and particularly in all fields of advanced technology.

It carries the connotation that this special US position is in some way a "threat" or is

at least "unfair." According to this view, US industry is becoming increasingly dominant in Europe, and this "domination" reinforces US political influence in Europe. The De Gaulle government has taken the view that this problem should be dealt with primarily by government action to promote national enterprises competitive with US-controlled enterprises, and to reduce the dominant position of US companies in France.

Most other West European governments do not fully agree with the French argument, and some reject it. Many, however, accept some of its implications. It is often held, for example, that because the US is "responsible" in some way for opening up this technological gap it also has a responsibility for finding and financing ways of closing it.

In some Western European countries the "technological gap" is rapidly becoming a question of prime political importance. In much of Europe, there is widespread concern over the obvious US lead in the electronics, heavy aircraft, and space industries. Even the annual report of the 1966 session of the European Parliament stated that "the independence of Europe is today much more menaced by a scientific and technical colonization than by a military offensive." There is also a real, although ill-defined, worry about the increasing US business and industrial presence in Europe--a presence which serves to emphasize the existence of the "gap."

US and European Perspectives

The "gap" issue is argued from different perspectives whether in America or in Europe. The theme of US giantism dominates the European's view. There is a common tendency to assume as typical the US automaker or steel producer whose individual output exceeds that of some European countries. Moreover, there is a widely held belief that the vast size of the US market supports technological ventures far beyond Europe's capacities, and permits longer range research and development, greater manpower allotment, and higher instrumentation expenditures. It is also argued that the US Government effort in military and space research confers free benefits on US industry in the form of new techniques, new products, and well-trained manpower available eventually for civilian pursuits.

European commentators are far less prone to seek the causes of the gap at home than are US observers, who more often see European traditionalism as its main source. The US observers charge that on the whole European managements are slow to move and have failed to convert the results of Europe's outstanding basic research to production and sales of new products. Europeans are said to be hostile to innovation and change in their corporate planning.

It has also been argued that the European system of education slows technological

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progress by wasting untapped talent and that past tendencies to fragmentation in European industry have kept many firms too small to conduct effective research and development efforts. Finally, the point has often been made that the European market, if properly organized, could be comparable in size to that of the US.

National Attitudes and Interests

Given the diversity of interests and attitudes that exists in Europe, it is apparent why, in general, the discussion of technological development often has displayed the prejudices and national bias of the participants, and has been long on rhetoric and short on specifics.

Among the NATO countries skeptical of the validity of the "gap" hypothesis, and pushing for even greater US bilateral relations are Norway, Canada, and to a lesser extent, Luxembourg. Norway's general policy is that financial saving should be achieved where possible by drawing on the US lead and past heavy investment in research and development. Norway believes, however, that the so-called "brain drain" and the lack of capital among small countries are legitimate concerns. It believes that the best solution to the latter problem probably would be to promote specialization, which would further open existing markets.

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Among the countries directly involved with the gap problem, the Belgians see an urgent need for technological advancement, particularly in the industrial application of technology, together with close collaboration among West European countries as the only realistic solution to the disparity problems. They consider, however, that the past record of European attempts at scientific collaboration has been uninspiring.

The Belgian prime minister has stated that the lack of adequate technological research threatens Belgian industry with stagnation and decline, and poses a real possibility of industrial domination by foreign countries. As an example, he has complained that transatlantic satellite communications are dominated by the US and that INTELSAT was a venture in which Belgium participated but exercised no control and from which it received no national benefit.

In West Germany there is a growing awareness and concern over technological problems, and the government will probably be under increasing pressure to devise some positive programs. The Germans see the Organization for Economic Cooperation and Development (OECD) as the logical organization through which to seek solutions. However, they also feel that maximum cooperation with the US is most likely to produce results.

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space fields. The French point out that because of domestic US legislation, Washington cannot make commitments in sectors where ownership of the relevant patents and responsibility for scientific research belong to private industry.

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The French have firmly opposed any US-European approach or relationship that would enhance the position of the US. They have expressed concern that US laboratories would draw off too many European scientists to everyone's eventual disadvantage. They have nevertheless also acknowledged that to date few French scientists have emigrated to the US because of the adequate facilities and attractive research programs in France.

The French have suggested that the technological issue be resolved in the EEC Council, yet have presented the major obstacles to solutions through that organization. As for a dialogue with the US, whether in a NATO or OECD contest, they have questioned to what extent the US Government could participate meaningfully in other than the atomic and

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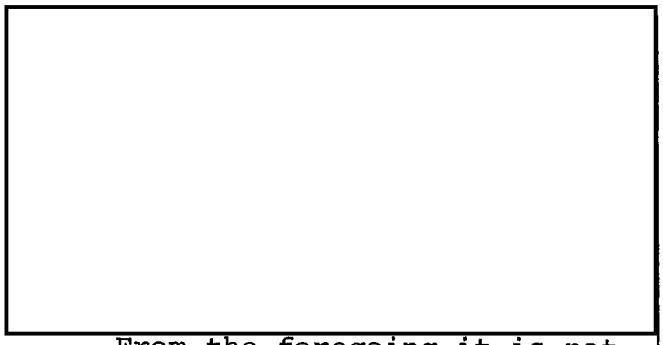

From the foregoing it is not difficult to see why one of the main difficulties in coming to grips with the gap issue has been the absence of objective data on the specific manifestations and scope of the problems and on the available assets. This has in turn contributed to the disagreements among the European governments about the best institutional framework for activities designed to define the problem and "overcome the gap."

Approaches to the Problem

Of the main suggestions that have been put forward officially and unofficially, four in particular are under active consideration and have some chance of showing results.

The activity most likely to do so first, and potentially the most immediately beneficial in clarifying basic misconceptions, is the study launched last fall by the OECD on trends in the development of European scientific resources. This study will cover national policies affecting the migration of scientists, the flow of technical know-how between countries, and the influence of government research and development policies on the competitiveness of certain industrial sectors employing advanced technologies.

Broadly, the study is intended to shed new light on the complex relationship between research and development and the achievement of economic growth. The study should reveal what the member countries really want and are prepared to pay for. The OECD investigation will embrace not only the UK and the Common Market countries, but also Japan, Sweden, Switzerland, Austria, and Spain. It has also been suggested that invitations later be extended to Eastern European countries to participate in some aspects of follow-up activity.

If sufficient effort and resources are put into the OECD investigation, it will probably mitigate some of the misconceptions and apprehensions in Europe. The study will probably find that US technology is not superior to Europe's in all fields, that technological differences are not growing in all fields, and that at any rate not all disparities can or should be entirely eliminated.

The study will probably also show that there are many important factors--including management, resources, and sizes of markets, as well as research and development efforts--that determine the success a country may have in applying technology toward the achievement of its goals. Furthermore, the study will probably conclude that there

is a need for a more integrated Europe to provide markets of adequate size and multinational research facilities, and for cooperation between US and European educational institutions.

Possibly the most comprehensive proposals currently under consideration are those presented by the Italian Government to the EEC and to the NATO ministerial meeting in December 1966. Among these was a recommendation that the EEC undertake efforts to develop technological and scientific resources to a degree commensurate with the organization's economic importance. The EEC Council agreed to devote a special meeting to the subject during the first half of 1967. The Italian proposal to NATO led to the establishment of an ad hoc committee to examine the problems and possible solutions related to "military and civil" disparities.

Specifically, the Italian proposals suggest priority areas for cooperative projects both for intra-European and European-US cooperation. The NATO proposal draws a distinction between military projects that should be considered in a NATO context and civil projects that could be better initiated elsewhere. The Italians have in mind a joint US-European effort reminiscent in spirit of the Marshall Plan.

The Italians are suggesting that the NATO countries announce their intention to convene a conference to negotiate a "technological agreement." At the conclusion of this conference, an "international institution" would be created to carry out the agreement. A "ten-year plan for technological development" would be initiated with the aim of enabling Europe to attain a level of technical-scientific knowledge and productivity closer to that of the US. The "ten-year plan" would list "priority areas" such as computers, the aeronautical industry, space research, booster rockets, tracking and launching facilities, satellites, atomic energy research, desalinization of water, and the purification of land, water, and atmospheric contamination.

An important element of the technological agreement and the ten-year plan would be cooperation between Europe and the US. In several of the areas in which the Italians propose cooperation --such as atomic energy or space-- European institutions either already exist, or US-European cooperation is currently active, or US proposals have been made to which the Europeans have not yet made a collective response.

The main initial purpose of the Italian proposals was political. The Italians hoped to breathe new life into the North Atlantic Treaty Alliance by holding out to the member states the prospect of being richer, more powerful, and better off ten years from now in cooperation with the US. The Italians also hoped to induce even France to think about the benefits of the alliance. They wanted to force the French to say whether they wish to participate in a

constructive venture or to pursue an isolated nationalistic course. The Italian aim was to establish formally that the problem is Atlantic in character, so that further steps among the Europeans will be taken with the clear intention of negotiation with the US.

The French, for their part, have made proposals for an EEC community-wide research and development program, and in November 1966 proposed that the EEC Commission be associated with the OECD working group dealing with this subject. Finally, the Belgians have proposed an institution for science and technology based on the Community of Six but also including the UK.

Conclusions and Outlook

The Europeans have a limited range of choices. On the one hand, they can drift along until mounting national political pressures force them to adopt restrictive policies toward US investment and to subsidize solely domestic research and technological growth. Such policies would not only be self-defeating by their nature, but would also be damaging to US-European relationships.

On the other hand, the Europeans can attempt to step up the acquisition of advanced technology through direct investment and through the licensing and purchasing of patent rights, by educational innovation, by pressing forward with European economic integration, and by collaborating with the US in joint research-investment projects.

The problem for Western Europe becomes less a matter of access to US scientific and technical data than one of creating--on the proper scale--the industrial, governmental, and legal institutions necessary to compete effectively. Probably the most important things for Europeans to do about sluggish scientific and technological development are to develop markets that are more unified and research efforts that are more integrated. (CONFIDENTIAL NO FOREIGN DISSEM)

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